


Department of Mechanical Engineering					
Name	Dr.K.Arun Balasubramanian				
Date of Birth	09.05.1980				
Unique ID	1-422455651				
Educational Qualifications	M.E., Ph.D				
Designation	Professor & HoD				
Email ID	karunbala@sethu.ac.in				
Alternate Email ID	kabetd2020@gmail.com				
Experience	Industry	Teaching	Others	Total	
		22	-	22	
Date of Joining the Institution	19.08.2004				
Area of Specialization	Alternate Fuels, Heat Transfer, Materials				
Courses taught	Gas dynamics and jet propulsion, Automobile Engineering, Industry 4.0, Machine Learning				
Research Focus	Alternate Fuels, Heat Transfer, Materials				
Research guidance (Number of Scholars)	01 PhD Scholar Completed, 01 PhD Scholar Pursuing.				
Subject Competency	Automobile Engineering, Industry 4.0, Machine Learning				
No. of papers published	National Journals	International Journals		Conferences	
	-	21		11	
PG Specialization	Internal combustion Engineering				
Ph.D. Specialization	Mechanical Engineering				
Projects Carried out	10				
Patents (Filed & Granted)	2 filed, 3 Published, 2 design patent				
No. of Books published with details (Name of the book, Publisher with ISBN, year of publication, etc.)	5				



Level	Degree	Specialization	University	Year of Completion
UG	B.E	Mechanical Engineering	Manonmaniam Sundaranar University	APRIL, 2001
PG	M.E	Internal Combustion Engineering	Anna University, Chennai	APRIL, 2004
Ph.D.	Ph.D.	Mechanical Engineering	Anna University, Chennai	June 2015

**Details of Journal Publication:**

International Journal Publications	
1	<b>K. Arun Balasubramanian</b> , Performance analysis and emission characteristics of VCR diesel engine using palm stearin oil biodiesel as fuel, <b>International Journal of Low-Carbon Technologies</b> , Oxford Publications, <b>2024</b> , 19, 1674–1681, <a href="https://doi.org/10.1093/ijlct/ctae118">https://doi.org/10.1093/ijlct/ctae118</a> .
2	NB Karthik Babu, Vignesh.V , <b>K.Arun Balasubramanian</b> , Kamatchi Devi, Mohamed Hashem and Hassan Fouad, “Effect of natural hybrid fillers reinforced vinyl ester composites on mechanical and physical properties” , <b>Materials Research Express</b> , 11, 105504, 2024.
3	<b>K. Arun Balasubramanian</b> , Flame stabilization and emission reduction: a comprehensive study on the influence of swirl velocity in hydrogen fuel-based burner design, <b>Aircraft Engineering and Aerospace Technology</b> , Emerald insights publications, ISSN: 0002-2667, September <b>2024</b> , <a href="https://doi.org/10.1108/AEAT-05-2024-0137">https://doi.org/10.1108/AEAT-05-2024-0137</a> .
4	<b>K. Arun Balasubramanian</b> , Exploring alternative fuel solutions: lemon grass oil biodiesel blend with dibutyl ether additive for VCR diesel engines - an experimental analysis, <b>Scientific Reports</b> , 14:20272, August 2024. <a href="https://doi.org/10.1038/s41598-024-70491-7">https://doi.org/10.1038/s41598-024-70491-7</a>
5	A. S. Sathishkumar, <b>K. Arun Balasubramanian</b> , T. Ramkumar, Investigations on thermal properties of MWCNT-NBN Paraffin Wax phase change material for thermal storage applications, <b>Journal of Thermal Analysis and Calorimetry</b> , <b>2023</b> , DOI:10.1007/s10973-022-11931-2.
6	<b>K. Arun Balasubramanian</b> , Improving the vortex tube parameters using CFD analysis for sustainable manufacturing, <b>IOP Conf. Series: Materials Science and Engineering</b> , IOP Publishing, vol. 1291, PP. 012037, October 2023.
7	S. Ravi, <b>K. Arun Balasubramanian</b> , G. Nagaraj and C. Kailasanathan, Investigations on thermo–physical properties of ethylene glycol-based hybrid Al <sub>2</sub> O <sub>3</sub> and ZrO <sub>2</sub> nanofluid as coolant, <b>Materials Today: Proceedings</b> , <b>2023</b> , <a href="https://doi.org/10.1016/j.matpr.2023.07.354">https://doi.org/10.1016/j.matpr.2023.07.354</a>
8	Loganathan, M and <b>Arun Balasubramanian, K.</b> , Investigation on the effect of diethyl ether with hydrogen-enriched cashew nut shell (CNS) biodiesel in direct injection (DI) diesel engine, <b>FUEL</b> , 277, 118165, <b>2020</b> .
9	D. Prince Sahaya Sudherson, P.Peter Anand kumar, G.R.Jinu, <b>K.Arun Balasubramanian</b> and S.C.Vettivel, “Experimental investigation on corrosion behavior of friction surfaced mild steel with aluminum alloy 5083- Cadmium composite”, Volume 6, Number 8, <b>Materials Research Express</b> , <b>2019</b> .

10	Srithar, K., <b>Arun Balasubramanian, K.</b> , Pavendan, V. and Ashok Kumar, B. ‘Experimental investigations on mixing of two biodiesel blended with diesel as alternative fuel for diesel engines’ <b>Journal of King Saud University-Engineering Sciences, Elsevier</b> , Vol.29, <b>2017</b> , pp.50-56.
11	<b>Arun Balasubramanian, K.</b> , Guruprasath, A., Marta Vivar, Skryabin, I., and Srithar, K. ‘Performance and emission characteristics of double biodiesel blends with diesel’, <b>Thermal Science</b> , 17 (1), 2012, pp.255-262.
12	Srithar, K., <b>Arun Balasubramanian, K.</b> , Vivar, M. and Skryabin, I. ‘An experimental investigation on diesel and low heat rejection engines with dual biodiesel blends’, <b>International Journal of Green Energy</b> , 10 (10), 2013, pp.1041-1055.
13	<b>Arun Balasubramanian, K.</b> and Srithar, K. ‘Multiple biodiesel mixtures in diesel engine - performance and emission analysis’ <b>Energy Education Science and Technology Part A: 32</b> (1), 2014, pp:13-24.
14	<b>Arun Balasubramanian, K.</b> and Srithar, K. ‘Energy and exergy analysis of CI Engine using dual biodiesel blends with diesel’ <b>Australian Journal of Basic and Applied Sciences</b> , 8 (2), 2014, pp: 78-86.
15	Srithar, K. and <b>Arun Balasubramanian, K.</b> ‘Dual Biodiesel for Diesel Engine –Property, Performance and Emission Analysis’ <b>International Energy Journal</b> , vol. 14, 2014, pp. 107-120.
16	<b>Arun Balasubramanian, K.</b> , ‘Dual Biodiesel Blends in Diesel Engine - Performance and Emission Analysis’, <b>European Journal of Scientific Research</b> , Vol.75, No.3, <b>2012</b> , pp. 400-408.
17	<b>Arun Balasubramanian, K.</b> , ‘Effect of oxygenated additives on the characteristics of the diesel engine’, <b>International Journal of Applied Engineering Research</b> , Vol.10, No.28, 2015.
18	K. Muralidharan, M. Rajashankar, <b>K. Arun Balasubramanian</b> , D. Senthil kumar, Impact of Fuel Injection Advance on Combustion and Gas Emissions In A TBC Engine Fuelled with Honge Bio-Diesel, <b>International Journal of Eco. Env. &amp; Cons.</b> 24 (March Suppl.), 2018, pp.S37-S41.
19	K. Muralidharan, M. Rajashankar, <b>K. Arun Balasubramanian</b> , D. Senthil Kumar, Environmental of A Single Cylinder Di Diesel Engine Fuelled With Non-Edible Pongamia Bio-Diesel Feed Stock Used For Agriculture, <b>International Journal Pure And Applied Mathematics</b> , 2018, Volume 118, No.20, pp.1803-1808.
20	A.S.Sathish Kumar, <b>Arun Balasubramanian, K.</b> , and Ramkumar, T., Structural Characterization of ZnO, CuO and Fe <sub>2</sub> O <sub>3</sub> Nanoparticles: Evaluation of Rietveld Refinement, <b>Tierärztliche Praxis</b> , Vol.40, 2020.
21	G. Nagaraj, <b>K.ArunBalasubramanian</b> , An Impact of E-commerce Business on Mechanical Manufacturing Industry, <b>Journal of Propulsion Technology</b> , Vol. 44 No. 5 (2023).

#### Details of Conference attended:

<b>National &amp; International Conferences</b>	
1.	Presented a Paper entitled ‘Vehicle body design and aerodynamic analysis’ in <b>National Conference</b> on “Recent Advances in Mechanical Engineering” on 5.4.2024 & 6.4.2024, PSR college of Engineering, Sivakasi.
2.	Presented a Paper entitled ‘Design and analysis of snap fit’ in <b>National Conference</b> on “Recent Advances in Mechanical Engineering” on 5.4.2024 & 6.4.2024, PSR college of Engineering, Sivakasi.
3.	Presented a Paper entitled ‘Design and analysis of disc brake using solid works and ansys” in <b>National Conference</b> on “Cutting edge technology in Mechanical Engineering” on 17.4.2024, SRM

National & International Conferences	
	Madurai College for Engineering and Technology, Madurai.
4.	Presented a Paper entitled 'Reduction of greenhouse gases in a single cylinder diesel engine fuelled with karanja biodiesel under fuel injection delay' in SEEE sponsored <b>International Conference</b> on Intelligent systems and control (ISCO) on January 2018, Karpagam College of Engineering, Coimbatore.
5.	Presented a Paper entitled 'Influence of fuel injection advance on performance and emission characteristics of DI diesel engine using Honge biodiesel' in SEEE sponsored <b>International Conference</b> on Intelligent systems and control (ISCO) on January 2018, Karpagam College of Engineering, Coimbatore.
6.	Presented a Paper entitled 'Effect of Oxygenated additives on the characteristics of the diesel engine, <b>International Conference</b> on Advanced Design and Manufacturing (ICADM-2015), Sethu Institute of Technology, held on 10/4/2015.
7.	Presented a Paper entitled 'Experimental investigation of neem oil as bio diesel', Proceedings of the UGC sponsored <b>National level technical conference</b> on Low Carbon Technologies, Annamalai University, 2009, pp. 71-75.
8.	Presented a Paper entitled 'Modeling of wicked heat flat plate solar collector" in the <b>International conference</b> at Noorul Islam College of Engineering, held during 16/12/2005-17/12/2005.
9.	Presented a Paper entitled "Static and Dynamic analysis of Turbine Wheel of Turbo Alternator using FEM" in the <b>National Conference</b> at Bannari Amman Institute of Technology, Sathyamnagalam during April 2005.
10.	Presented a paper entitled "Performance test of pongamia oil biodiesel on 4 stroke single cylinder diesel engine" in the <b>National Conference</b> at Sethu Institute of Technology during 29 <sup>th</sup> & 30 <sup>th</sup> March 2007.
11.	Presented a paper entitled "Hydrogen production via a two-step water-splitting thermo chemical cycle based on Zn/ZnO redox reactions using solar energy" in the <b>National Conference</b> at Sethu Institute of Technology, during 29 <sup>th</sup> & 30 <sup>th</sup> March 2007.

#### Details of Book Chapter and Books Published:

Books Published		Publication Name	ISBN number	Year
1	Engineering Graphics	Little Moon	978-81-929985-0-3	2010
2	Basic Civil and Mechanical Engineering	Little Moon	978-81-929985-1-0	2014
3	Computer Aided Drafting and Modeling	Little Moon	978-81-929985-3-4	2015
4	Engineering Practices	Little Moon	978-81-929985-2-7	2014
5	Engineering Drawing Laboratory	Little Moon	978-81-929985-4-1	2015

#### Details of Patents Filed and Granted:

S. No	Patent Title	Name of Applicant	Patent No.	Award Date	Agency/ Country	Status
1.	Automatic Hybrid Seed Planting and Liquid Spray Machine	Dr.K.Arun Balasubramanian	410673-001	10.05.2024	India	Design Patent grant
2.	Machine Learning based Robot for determining crop	Dr.K.Arun	410995001	10.05.2024	India	Design Patent grant

	yield	Balasubramanian				
3.	Processor implemented method for water marking and cyber protection of deep learning models	Dr.K.Arun Balasubramanian	202141013761	2.4.2021	India	Patent Journal Publication
4.	Development of a supervisory system for telemetry of a fluid pump using Arduino and express PCB	Dr.K.Arun Balasubramanian	202241054044	30.9.2022	India	Patent Journal Publication
5.	Advanced Quantum Sensors for Ultra-Precise Measurement and Quantum Metrology	Dr.K.Arun Balasubramanian	202441010912	16.02.2024	India	Patent filed
6.	IOT based sensor array technique for sailing vessels motion monitoring	Dr.K.Arun Balasubramanian	202341007820	7.2.2023	India	Patent Journal Publication
7.	Radiation intensity sensor mounted solar panel system	Dr.K.Arun Balasubramanian	442548-001	29.12.2024	India	Filed
8.	Semi-Trailing Arm Suspension With Integrated Knuckle For Vehicles	Dr.K.Arun Balasubramanian	202441100553	03.01.2025	India	Patent Journal Publication

#### Expert Lecture Delivered:

Extension Activities	
1.	<b>Guest lecture</b> delivered to K.L.N. Memorial Polytechnic College, Madurai on the topic of “Alternate fuels” on 26/02/2011.
2.	Acted as <b>Resource Person</b> for the National level FDP on “Engineering Mechanics”, held at Sethu Institute of Technology, Virudhunagar, held on 05.12.2015.
3.	Acted as <b>Resource Person</b> for the National level FDP on “Engineering Thermodynamics”, held at Sri Vidya Engineering and Technology, Virudhunagar, held on 06.06.2016.
4.	Delivered the <b>external lecture</b> on “Alternate Fuels”, held at Sri Vidya Engineering and Technology, Virudhunagar, held on 31.08.2016.
5.	Acted as <b>Resource Person</b> for the National level Workshop on “Recent trends in I.C.Engines”, held at Sri Vidya Engineering and Technology, Virudhunagar, held on 24.09.2016.
6.	Acted as <b>judge</b> in the event of Paper Presentation for National level technical symposium at Sree Sowdambika College of Engineering, Aruppukottai on 01.09.2017.
7.	Delivered the <b>external lecture</b> on “Industry 4.0”, held at Adhi college of Engineering and Technology, Chennai held on 1.02.2025.